## SEQUENCE LISTING

The Trustees of the University of Pennsylvania <110> Roy, Soumitra Wilson, James M. Methods of Generating Chimeric Adenoviruses and Uses For Such <120> Chimeric Adenoviruses <130> UPN-P3067PCT <150> US 10/465,302 <151> 2003-06-20 <150> US 60/566,212 <151> 2004-04-28 <150> US 60/575,429 <151> 2004-05-28 <160> 18 <170> PatentIn version 3.2 <210> <211> 36462 <212> DNA <213> chimpanzee adenovirus serotype Pan5 <400> catcatcaat aatatacctc aaacttttgg tgcgcgttaa tatgcaaatg aggtatttga 60 120 tgacgttttg atgacgtggc cgtgaggcgg agccggtttg caagttctcg tgggaaaagt 180 gacgtcaaac gaggtgtggt ttgaacacgg aaatactcaa ttttcccgcg ctctctgaca 240 ggaaatgagg tgtttctggg cggatgcaag tgaaaacggg ccattttcgc gcgaaaactg 300 aatgaggaag tgaaaatctg agtaattccg cgtttatggc agggaggagt atttgccgag 360 ggccgagtag actttgaccg attacgtggg ggtttcgatt accgtatttt tcacctaaat 420 ttccgcgtac ggtgtcaaag tccggtgttt ttacgtaggt gtcagctgat cgccagggta 480 tttaaacctg cgctctctag tcaagaggcc actcttgagt gccagcgagt agagtttct 540 cctccgcgcc gcgagtcaga tctacacttt gaaagatgag gcacctgaga gacctgcccg 600 gtaatgtttt cctggctact gggaacgaga ttctggaact ggtggtggac gccatgatgg 660 gtgacgaccc tccggagccc cctaccccat ttgaagcgcc ttcgctgtac gatttgtatg 720 atctggaggt ggatgtgccc gagaacgacc ccaacgagga ggcggtgaat gatttgttta 780 gcgatgccgc gctgctggct gccgagcagg ctaatacgga ctctggctca gacagcgatt 840 cctctctcca taccccgaga cccggcagag gtgagaaaaa gatccccgag cttaaagggg 900 aagagctcga cctgcgctgc tatgaggaat gcttgcctcc gagcgatgat gaggaggacg 960 aggaggcgat tcgagctgca gcgaaccagg gagtgaaaac agcgagcgag ggctttagcc 1020 tggactgtcc tactctgccc ggacacggct gtaagtcttg tgaatttcat cgcatgaata 1080 ctggagataa gaatgtgatg tgtgccctgt gctatatgag agcttacaac cattgtgttt 1140 acagtaagtg tgattaactt tagctgggga ggcagagggt gactgggtgc tgactggttt 1200

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|   |              |              |              | - 35 30              |                        |              |       |

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|  |       |

Bee form II is they some think it is seen some some some

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Beer Broke II of Bull tout that is a minimum of the

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| Dans 28  | J .000 |  |

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| gacgtcaaac   | gaggtgtggt | ttgaacacgg | aaatactcaa            | ttttcccgcg | ctctctgaca | 240  |
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| aatgaggaag   | tgaaaatctg | agtaatttcg | cgtttatggc            | agggaggagt | atttgccgag | 360  |
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|              |            |            |                       |            |            |      |

Bet finn B is destructed on a man and in a

| gcggaggagg aggagtagct gacttgtttc ccgagctgcg ccgggtgctg actaggtctt | 2220  |
|---|-------|
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|            |              |            | Page 41    |              | -            |       |

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| Page 46  |    |

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| - Laattcctc | aatcatcatg | ttacactcct | gcaccatccc            | cagataattt | tcatttttcc | 35220 |
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|            |            |            | Page 56    | J          | -3-2222566  | 7,70 |

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|   |            |            |            |            | cgatcggccc |            | 5160 |
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|   |            |            |            |            | tgcagggtga |            | 5280 |
|   |            |            |            |            | cacaatcgcc |            | 5340 |
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| Page 58  |        |

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| Dame Cd   |   |

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| ggrggatate cagateceeg teaegteage ttegaeegee gtggaageea tggaaaege   | 15300   |
| aacggaaacc cctgccgcga tcggtaccag ggaagtggcg ttgcaaaccg acccctggt   | 15360   |
| cyaatacgcc gcccctcggc gtcagaggcg acccgctcgt tacggccccg ccaacgcca   | 15420   |
| catgccagaa tatgcgctgc atccgtctat cctgcccacc cccggctacc ggggagtga   | 15480   |
| grategeeeg teaggaacee geegeegaae eegtegeege egeegeteee gtegtgete   | 15540   |
| ggccccgtg tcggtgcgcc gcgtaacacg ccggggaaag acagttacca ttcccaacc    | 15600   |
| gegetaceae cetageatee tttaatgaet etgeegtttt geagatgget etgaettgee  | 15660   |
| yegigegeet teeegiteeg caetategag gaagateteg tegtaggaga ggeatggeg   | 15720   |
| graginging coggogget tigogogge goatgaaagg oggaatitta coogciote     | 15780   |
| tacccataat cgccgccgcc atcggtgcca tacccggcgt cgcttcagtg gccttgcaac  | 15840   |
| cageregraa taaataaaeg aaggettttg caettatgte etggteetga etattttate  | 15900   |
| cagaaagagc atggaagaca tcaattttac gtcgctggct ccgcggcacg gctcgcggc   | 15960   |
| gcicatgggc acctggaacg acatcggcac cagtcagctc aacgggggcg ctttcaattg  | 16020   |
| gyggagcctt tggagcggca ttaaaaactt tggctccacg attaaatcct acggcagcaa  | 16080   |
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| coccecting coggeteegt eggegggace egtgteegea ecegtegeeg tgeetetgee  | 16620   |
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| crygcaaagc acgctgaaca gcatcgtggg cctgggagtg aaaagcctga aacgccgcg   | 16740   |
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| tecegrigeag tregeeegeg ceaecgaeae etaetteage traggaaaea agttragaaa | 16980   |
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| egraggygac aaccgagtgc tggacatggc cagcacctac tttgacatcc ggggagtgct  | 17160   |
| Page 62  |         |

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| gccgcaaatt | ggagaactac   | agtggaacag   | cgatgttgga | accgatgaca   | aaatagcagg   | 17460 |
| aagagtgcta | aagaaaacaa   | cgcccatgtt   | cccttgttac | ggctcatatg   | ccaggcccac   | 17520 |
| taatgaaaaa | ggaggacagg   | caacaccgtc   | cgctagtcaa | gacgtgcaaa   | atcccgaatt   | 17580 |
| acaattttt  | gcctctacta   | atgtcgccaa   | tacaccaaaa | gcagttctat   | atgcggagga   | 17640 |
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| tacaagttca | gaggctctac   | tgacccaaca   | agctgctccc | aaccgtccaa   | actacatage   | 17760 |
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| aggagtggaa | ataggttcag   | ggaacatgtt   | tgccatggag | attaacctgc   | aagccaacct   | 18180 |
| atggcgtagc | tttctgtact   | ccaatattgg   | gctgtacctg | ccagactctc   | tcaaaatcac   | 18240 |
| tcctgacaac | atcacactcc   | cagagaacaa   | aaacacctat | cagtatatga   | acggtcgcgt   | 18300 |
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| tcagatgctc | agccactaca a | acatcggcta ( | ccagggcttc | tacgtgcccg   | aaaattacaa   | 19140 |
| ggaccgcatg | tactctttct · | tcagaaactt   | ccaacccatg | agccgccaaa   | ttgtagattc   | 19200 |
|            |              |              | Page 62    |              |              |       |

| aacggcttac | actaattatc | aggatgtgaa | actgccatac            | cagcataaca | actcagggtt | 19260 |
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|            |            |            |                       |            | tcaccgacct | 19440 |
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| tcccatggat | gagcccacgc | ttctctatgt | tctgtttgaa            | gtcttcgacg | tggtgcgcat | 19560 |
|            |            |            |                       | cgcacacctt |            | 19620 |
|            |            |            |                       | aggagctgca |            | 19680 |
| cgcgacctgg | gctgcgggcc | ctactttttg | ggcaccttcg            | acaagcgttt | tcccggcttc | 19740 |
| atgtccccc  | acaagccggc | ctgtgccatc | gttaacacgg            | ccggacggga | gaccgggggg | 19800 |
|            |            |            |                       | cctgctacct |            | 19860 |
|            |            |            |                       | tcgagtacga |            | 19920 |
|            |            |            |                       |            | gtccacccaa | 19980 |
|            |            |            |                       | gttgcatgtt |            | 20040 |
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| gtgcccaaca | gcatgcttca | cagcccccag | gtcgccccca            | ccctgcgccg | taaccaggaa | 20160 |
|            |            |            |                       | gccgccaccg |            | 20220 |
| gaacgggcca | cggccttcga | aagcatgagc | caaagagtgt            | aatcaataaa | aaacattttt | 20280 |
|            |            |            |                       | gaagggttcg |            | 20340 |
| cctcgtgccc | gctggggagg | gacacgttgc | gatactggaa            | acgggcgctc | caacgaaact | 20400 |
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| ccagctgcag | ggctcccatg | acgtcgggcg | ccgatatctt            | gaagtcgcag | ttagggccgg | 20520 |
| agctcccgcg | gctgttgcgg | aacacggggt | tggcacactg            | gaacaccagc | acgccggggt | 20580 |
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| tgctcagggc | aaacggggtc | agcttgcaca | tctgccgccc            | aatctggggt | actaggtcgc | 20700 |
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| cctccgcgca | gcagcgggcg | tcttcgttct | tcagctgaac            | cacgttgcgg | ccccaacggt | 20940 |
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| aagtttgaca | gatcttgcgg | tacaccgctc | cctggtcggg<br>Page 64 | cagaaactta | aaagccgctc | 21300 |
|            |            |            |                       |            |            |       |

| tactatcatt at the same   |           |
|--|-----------|
| tgctgtcgtt gtctacgtgg aacttctcca ttaacatcat catggtttcc ataccct   | tct 21360 |
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| certergact tigicoccet cicciacege gagigecete ecceaeigig gagecaeig | ac 23220  |
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| ggagagggtt tactggagtg ccactgccgc tgcaacctgt gcacccccca cagatcgc  | tg 23340  |
| Page 65  | _         |

| gcctgcaaca co  | cgagctact  | cagcgaaacc               | caggtcatag | gtaccttcg    | a gatccagggg | 23400 |
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| caatctcgac ca  | accgaaagc  | cccctcacg                | gcctgcgtca | tcacccaga    | g caagatcctq | 23580 |
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| cycgctccgg ggg | aatcggc a  | ctctccagt <sup>(</sup> t | cgtggaaga  | gttcgttccc   | tccatctact   | 25200 |
| readcecett etc | eggeteg e  | ctggacgct a              | cccggacgc  | cttcattccc   | aactttgacg   | 25260 |
| cagrgagtga atc | cgtggac gg | gctacgact g              | atgacagat  | ggtgcggcca   | tgagageteg   | 25320 |
| gctgcgacat ctg | catcact go | cgtcagcc t               | cgctgctac  | gctcgggagg   | Caatcatctt   | 25380 |
| cagctacttt gag | ctgccgg ac | gagcaccc t               | cagggtccg  | gctcacgggt   | tgaaactcga   | 25440 |
|                |            |                          | Page 66    |              | _            |       |

| gatcgagaac | gcgctcgagt | ctcgcctcat | cgacacctto | accgcccgad   | ctctcctggt | 25500 |
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|            |            |            | Page 72    |            | - <b>-</b> |      |

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|  |      |

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| Page 76   |      |

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| Page 79  | 1/02U        |

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| Page 80   |       |

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| tggacgacgc | cgaagcactg | ttcagcaaat | actgctcagc            | gtctcttaaa | gactaaaaga | 24360 |
| cccgcgcttt | ttcccctcg  | ggcgccaaaa | cccacgtcat            | cgccagcatg | agcaaggaga | 24420 |
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| acggcatccg | agcccaccga | aaccagatcc | tcttagaaca            | ggcggcaatc | accgccacac | 24600 |
| cccggcgcca | actcaacccg | cccagttggc | ccgccgccca            | ggtgtatcag | gaaactcccc | 24660 |
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|            |            | ctactaactg |            |            |            | 26340 |
|            |            | gctgtcgcca |            |            |            | 26400 |
|            |            | taaaaccctg |            |            |            | 26460 |
|            |            | gacttcaacc |            |            |            | 26520 |
|            |            | ccgcctttta |            |            |            | 26580 |
|            |            | tacagggatc |            |            |            | 26640 |
|            |            | actctaaaca |            |            |            | 26700 |
|            |            | aatgctaaca |            |            |            | 26760 |
|            |            | ctaactctat |            |            |            | 26820 |
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| ٩. | gcacaacaaa | tacacacttt | catatacatt | ttcataacat            | gtttttccca | ggccgttaaa | 29040 |
| ā  | atacaatccc | aatacacggg | ccactcctgc | agtacaataa            | agctaataca | agatggtata | 29100 |
| (  | ctcctcacct | cactgacact | gtgcatgttc | atattttcac            | attctaagta | ccgagagttc | 29160 |
| 1  | tcctctacag | cagcactgct | gcggtcctca | caaggtggta            | gctggtgatg | attgtagggg | 29220 |
| ç  | gccagtctgc | agcgataccg | tctgtcgcgt | tgcatcgtag            | accaggaacc | gacgcacctc | 29280 |
| (  | ctcgtacttg | tggtagcaga | accacgtccg | ctgccagcac            | gtctccacgt | aacgccggtc | 29340 |
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| g  | jatcaaacgt | tatgcgattc | tccaagctat | cgatcgccgc            | ttccaaaaga | gcctggaccc | 29700 |
| g  | cacttccac  | aaacaccagc | aaagcaaaag | cactattatc            | aaactcttca | atcatcaagc | 29760 |
| t  | gcaggactg  | tacaatgcct | aagtaatttt | cgtttctcca            | ctcgcgaatg | atgtcgcggc | 29820 |
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| t  | cccgagtaa  | caaaactgat | gaatgggagt | aacacagtgt            | aaaatgtgca | accaaaaatc | 30180 |
| a  | ctaaggtgc  | tcctttaaaa | agtccagtac | ttctatattc<br>Page 85 | agtccgtgca | agtactgaag | 30240 |
|    |            |            |            |                       |            |            |       |

|  | ggaatatgca  | caacaaaaa  | aatagggcgg  | ctcagataca  | tgttgaccta   | 30300  |
|--|---|--|---|---|--|--|
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|  |   |  | ggaaccgcgg  |   |  | 30420  |
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|  |   |  | aaaaaaacgt  |   |  | 30540  |
|  |   |  | aatccctctg  |   |  | 30600  |
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| <210> 6<br><211> 341<br><212> DNA<br><213> sim<br><400> 6  | 15<br>ian adenovii  | rus SV-39  |   |   |  |  |
|  | ataacaccgc  | aagatggcga   | ccgagttaac  | atgcaaatga  | ggtgggcgga   | 60   |
|  |   |  | agtgggcgcg  | acagatttca  | 00000000   |  |
| cggggcgggg   |   |  |   |   |  | 120  |
|  | cgggcgtgtc  | gcgcggcggt   | gacgcgccgg  | ggacccggaa  |  | 120<br>180   |
|  |   |  | <pre>gacgcgccgg ttttggcgcg</pre>  | ggacccggaa  | attgagtagt   |  |
| ttttattcat   | tttgcaagtt  | tttctgtaca   |   | ggacccggaa<br>aaaactgaaa  | attgagtagt<br>cgaggaagtg   | 180  |
| ttttattcat<br>aaaagtgaaa   | tttgcaagtt<br>aatgccgagg  | tttctgtaca<br>tagtcaccgg   | ttttggcgcg  | ggacccggaa<br>aaaactgaaa<br>gacctttgcc  | attgagtagt<br>cgaggaagtg<br>gtgtggagtt   | 180<br>240   |
| ttttattcat aaaagtgaaa tacccgctga aaaggtcccc  | tttgcaagtt<br>aatgccgagg<br>cgtgtgggtt<br>atttatgac   | tttctgtaca<br>tagtcaccgg<br>tcggtctcta<br>tccacgtcag   | ttttggcgcg<br>gtggagatct<br>ttttttcact<br>ctgatcgcta  | ggacccggaa<br>aaaactgaaa<br>gacctttgcc<br>gtggttttcc<br>gggtatttaa  | attgagtagt<br>cgaggaagtg<br>gtgtggagtt<br>gggtacggtc<br>tgcgcctcag   | 180<br>240<br>300  |
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| ttttattcat aaaagtgaaa tacccgctga aaaggtcccc accgtcaaga actgtgaaaa  | tttgcaagtt aatgccgagg cgtgtgggtt attttatgac ggccactctt aatgaggaac   | tttctgtaca tagtcaccgg tcggtctcta tccacgtcag gagtgccggc ttcttgctat  | ttttggcgcg<br>gtggagatct<br>ttttttcact<br>ctgatcgcta<br>gagaagagtt<br>ctccggggct  | ggacccggaa aaaactgaaa gacctttgcc gtggttttcc gggtatttaa ttctcctccg gccagcgacc  | attgagtagt cgaggaagtg gtgtggagtt gggtacggtc tgcgcctcag cgttccgcca gtagccgccg   | 180<br>240<br>300<br>360<br>420  |
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| ttttattcat aaaagtgaaa tacccgctga aaaggtcccc accgtcaaga actgtgaaaa agctgttgga tttgtgaaga aggatgaatg   | tttgcaagtt aatgccgagg cgtgtgggtt attttatgac ggccactctt aatgaggaac ggacattgtt ttttagtctt gctggagtct                      | tttctgtaca tagtcaccgg tcggtctcta tccacgtcag gagtgccggc ttcttgctat accggagctc catgatctct gtggatgggt   | ttttggcgcg gtggagatct tttttcact ctgatcgcta gagaagagtt ctccggggct tgggagacga atgatattga ttttccgga                                  | ggacccggaa aaaactgaaa gacctttgcc gtggttttcc gggtatttaa ttctcctccg gccagcgacc tcctcaggtg tccgggtgtt cgctatgctg   | attgagtagt cgaggaagtg gtgtggagtt gggtacggtc tgcgcctcag cgttccgcca gtagccgccg atttctcact gaggggcaag ctagaggctg  | 180<br>240<br>300<br>360<br>420<br>480<br>540<br>600                             |
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| ccgcgggtca | tgtagggata | ggccgctgcc | ataaaagctt<br>Page 96 | cgatctqcct | gaaagcctgc   | 21720 |
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| Page 97   | υU   |

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| Page 98   | 25860          |
|   |                |

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|            |            |            | Page 00    |            | •          |       |  |

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|              |            |              |                        |            |              |       |

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| tcgggggtga | ccacgtagaa | ggtgcggccg | tcctggcccc | aggcgtccca | gttctgctcg | 7860 |
| cgggcgagac | ggcaggcctc | ctcgacgagg | gcctcctccc | cggagagatg | catgactagc | 7920 |
|            |            |            |            |            |            |      |

| atgaagggga cgagttgctt gccgaaggca cccatccacg tgtaggtctc tacgtcgtag  | 7980         |
|--|--------------|
| grgacgaaga gacgttcggt gcgaggatgc gagccgagag gaaagaagtt gatctcctgc  | 8040         |
| caccagccgg aggagtgggc gttgacgtgg tggaagtaga agtcacgccg gcggaccgtg  | 8100         |
| cattegtget gatatttgta aaagegggeg eagtactege agegetgeae getetgeaet  | 8160         |
| tcctgaacga gatgcacccg gcgcccgcgc accaggaggc ggagggggca gtccagtgga  | 8220         |
| gcttcggcgc gctgtccttc agcctcgtca tgctcttctg cacctgcacg ctcctgctgt  | 8280         |
| gggtggagga cggagggagt gacgacgccg cgcgagccgc aggtccagat gtcgacgcgc  | 8340         |
| ggcggcctga ggctcagcgc cagggtgcgg atctgagcgg cgtccaggga gtcgaggaag  | 8400         |
| gcctcgctga ggtcgacggg cagcgtccgc cggtggactt gcaggagacg ggtaagggcc  | 8460         |
| ggcgccaggc gctgatggta cttgatctcg agcggttcgt tggtggaggt gtcgatggcg  | 8520         |
| tagagcaggg cctgaccgcg ggcggcgacg atggtgccgc ggtgccggcg gtaggtggcg  | 8580         |
| tattcggggg ggctcgttac atcacccgcc tgggcctggc gccgggcggc agcgggggtt  | 8640         |
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| tccgctgcgt gaagaccacc ggtccccgga ctcggaacct gaaagagagt tcgacagaat  | 8820         |
| caatctcggc atcgttgacg gccgcctgac gcaggatctc ctgcacgtcg cccgagttgt  | 8880         |
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| cggcgcgttc gacggtggcc gcgaggtcgt tggagatgcg agccatgagc tgggagaagg  | 9000         |
| cgttgaggcc gttctcgttc cacacgcgac tgtagacgac gttgccgacg gcgtcccggg  | 9060         |
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| tctctcgggg ccgcagttcg aagacgcccc cgcgcaggcc gccggcgccg ccgagagggg  | 9600         |
| gcaggaggtg ggggccttcg ggcagcgaga gggcgctgac gatgcaccgt atcatctgtt  | 9660         |
| ycytaggtac agctctccag gagtcgttga gcgagtccag three                  | 9720         |
| tttcgaggaa agcttcgatc caatcgcagt cgcaaggtaa gctgaggacg gtgggatgag  |              |
| 999CTTggCg ggaggCggag qCqqCaqaaa aqqaqaaaa ggaaaaaa                | 9780<br>9840 |
| tyctgatgat gtaattgaag taggcggttt tcaaacggcg gatgataa               |              |
| Cyliffing Cocggoing tagatacaca agrantegas catagonics               | 9900         |
| gycatcggcg caggtccttg tagtagtctt gcatgagtct ctcgacggg acgtcgtctt 1 | 9960         |
| Page 108   | 0020         |

| cgtcggcccg | gtcggccatg | cgggtggagc | cgaacccgcg | caggggctgc | agcagggcca | 10080 |
|------------|------------|------------|------------|------------|------------|-------|
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| agtcgtccag | gtccacgaag | cggtggtagg | agcccgtgtt | gatggtgtag | gtgcagttgg | 10200 |
| ccatgacgga | ccagttgacg | acttgcatgc | cgggctgggt | gatctcggtg | tagcggaggc | 10260 |
| gcgagtaggc | ccgcgactcg | aagacgtagt | cgttgcaggt | gcgcacgagg | tactggtagc | 10320 |
| cgacgaggaa | gtgcggcggc | ggctcgcggt | agaggggcca | gcgcacggtg | gcgggggcgc | 10380 |
| cgggggccag | gtcctccagc | atgaggcggt | ggtagtggta | gacgtagcgc | gagagccagg | 10440 |
| tgatgccggc | ggcggaggtg | gcggcgcggg | cgaagtcgcg | gacgcggttc | cagatgttgc | 10500 |
| gcaagggggc | gaagcgctcc | atggtgggca | cgctctggcc | ggtgaggcgg | gcgcagtcct | 10560 |
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| cagaccgcca | gggtgcgacg | gcggggaacc | ccggttcgag | accggctgga | tccgtccgtc | 10680 |
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| cggaccccag | atacggaggg | gagccttttt | gtggttttt  | cccgtagatg | catccggtgt | 10800 |
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| agacggtgaa | cgaggagcgg | agctttcaga | aaagcttcaa | caaccacgtg | cgcaccctga | 11280 |
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| agatctacaa | gagcccctac | gtgcccatag | acaaggaggt | gaagatcgac | agcttttaca | 11640 |
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| 9999gacccc | gccgtgctgg | cggccctgca | gagccaacct | tcgggcgtga | acgcctccga | 12060 |
|            |            |            | Page 100   | 1          |            |       |

| tgactgggcg gcggccatgg accgcatttt ggccttgacc acccgcaacc ccgaggcctt 12120  |
|--|
| tagacagcag ccgcaggcca accgcttttc ggccatcttg gaagccgtgg tgccctcgcg 12180  |
| caccaacccc acgcacgaga aggtcctggc ggtggtgaac gcgctgctgg agagcaaggc 12240  |
| gateegeaag gaegaggegg ggetgattta caaegeeetg etggageggg tggegegeta 12300  |
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| gccatggtcg cagcgtcggt ccctttgtgt gtgttttctc ctccccggta gcgaa atg 13798   |
| Met<br>1   |
| agg cgc gcg gtg gga gtg ccg ccg gtg atg gcg tac gcc gag ggt cct 13846 Arg Arg Ala Val Gly Val Pro Pro Val Met Ala Tyr Ala Glu Gly Pro  |
|  |
| cct cct tct tac gaa acg gtg atg ggc gcc gcg gat tcg ccg gcc acg 13894 Pro Pro Ser Tyr Glu Thr Val Met Gly Ala Ala Asp Ser Pro Ala Thr  |
| 30   |
| ctg gag gcg ctc tac gtc cct ccc cgc tac ctg ggg cct acg gag ggg 13942  |
| Page 110 Pag |

| Le         | u G]       | u Al       | a Le       | и Ту       | r Va       | ] Pro             | ) Pro       | o Ar                                    | g Tvi       | r Lei             | ı Gl  | v Pr       | n Th       | r Gl       | u Gly                |       |
|------------|------------|------------|------------|------------|------------|-------------------|-------------|---|-------------|-------------------|-------|------------|------------|------------|----------------------|-------|
|            |            |            |            |            |            |                   |             |   |             |                   | 45    |            |            |            |                      |       |
| 50         |            |            |            |            | 55         |                   |             |   | - 716       | 60                | Lei   | и ту       | r AS       | p in       | c acc<br>r Thr<br>65 | 13990 |
|            |            |            |            | 70         |            | ,                 |             | . 561                                   | 75          | ı ASL             | , T16 | e Ala      | a Se       | r Le<br>80 | g aac<br>u Asn       | 14038 |
|            |            |            | 85         |            |            |                   |             | 90                                      | * 1111      | 1411              | Va    | ı va       | 95         | 1 AS       | c aat<br>n Asn       | 14086 |
|            |            | 100        | 0          |            |            |                   | 105         | • | 3111        | 1111              | Τ 16  | 11(        | ) Pne      | e Ası      | c gag<br>p Glu       | 14134 |
|            |            |            |            |            |            |                   |             |   |             |                   | 773   | )          |            |            | c atg<br>1 Met       | 14182 |
| 130        | )          |            |            |            | 135        |                   | <b>J</b> C. | • | A311        | 140               | Pne   | Arg        | Ala        | ı Arg      | ttg<br>Leu<br>145    | 14230 |
|            |            |            | _          | 150        | )          | _,_               | ٠.۵         | ,,,,,                                   | 155         | Ala               | Pro   | Arg        | Гуг        | ' GIL      |                      | 14278 |
|            |            |            | 165        | ,          |            |                   | ,           | 170                                     | ' '         | 361               | Giu   | inr        | мет<br>175 | Thr        | ata<br>Ile           | 14326 |
|            |            | 180        | )          |            |            |                   | 185         | лор                                     | A311        | ıyı               | Leu   | 190        | vai        | Gly        | cgg<br>Arg           | 14374 |
|            | 192        |            |            |            |            | 200               |             |   | <b>u.</b> , | va,               | 205   | Pile       | ASP        | ınr        | cgc<br>Arg           | 14422 |
| 210        |            |            |            | •          | 215        |                   |             | vui                                     | 1111        | 220               | Leu   | vaı        | Met        | Pro        | 225                  | 14470 |
|            |            |            |            | 230        |            | ttc<br>Phe        |             |   | 235         | TIE               | vai   | Leu        | Leu        | Pro<br>240 | Gly                  | 14518 |
|            |            |            | 245        |            |            | cag<br>Gln        |             | 250                                     | LCu         | 361               | ASII  | Leu        | 255        | Gly        | Ile                  | 14566 |
|            |            | 260        |            |            |            | cag<br>Gln        | 265         | <b>U.</b> ,                             | 1116        | 9111              | TIE   | 270        | Tyr        | Glu        | Asp                  | 14614 |
|            | 2/5        |            |            |            |            | ccc<br>Pro<br>280 |             |   | LCu         | дэр               | 285   | АТА        | Lys        | Tyr        | Glu                  | 14662 |
| 290        |            |            |            |            | 295        | cgg<br>Arg        |             |   |             | 300               | Giu   | тіб        | Arg        | GIY        | ASP<br>305           | 14710 |
| aac<br>Asn | ttt<br>Phe | acc<br>Thr | gtc<br>Val | atc<br>Ile | CCC<br>Pro | cgg (<br>Arg /    | gac<br>Asp  | gtg<br>Val                              |             | atc<br>Ile<br>111 | v a ı | ccc<br>Pro | gtg<br>Val | gag<br>Glu |                      | 14758 |

|   | 310                               |                           | 315                               | 3                             | 320                           |
|---|-----------------------------------|---------------------------|-----------------------------------|-------------------------------|-------------------------------|
| gat agc aag gac<br>Asp Ser Lys Asp<br>325 | cgc agt tac<br>Arg Ser Tyr        | aac cta<br>Asn Leu<br>330 | ctc ccc ggc<br>Leu Pro Gly        | gac cag a<br>Asp Gln 1<br>335 | cc aac 14806<br>hr Asn        |
| acg gcc tac cgc<br>Thr Ala Tyr Arg<br>340 | agc tgg ttc<br>Ser Trp Phe        | ctg gcc<br>Leu Ala<br>345 | tac aac tac<br>Tyr Asn Tyr        | ggc gac o<br>Gly Asp F<br>350 | cc gag 14854<br>Pro Glu       |
| aag ggc gtc agg<br>Lys Gly Val Arg<br>355 | 360                               | Lea Lea                   | 365                               | ASP Val T                     | hr Cys                        |
| ggc tcg cag cag<br>Gly Ser Gln Gln<br>370 | 375                               | Ser Leu                   | 380                               | Met Gin A                     | ac ccc 14950<br>sp Pro<br>385 |
| gtg acc ttc cgg<br>Val Thr Phe Arg        | 390                               | dili vai                  | 395                               | Pro Val v<br>4                | 00                            |
| gtc gag ctc ctg<br>Val Glu Leu Leu<br>405 |                                   | 410                       | sei File Tyr                      | 415                           | in Ala                        |
| gtc tac tcg cag<br>Val Tyr Ser Gln<br>420 |                                   | 425                       | illi Ala Leu                      | 430                           | al Phe                        |
| aac cgc ttc ccc<br>Asn Arg Phe Pro<br>435 | gag aac cag<br>Glu Asn Gln<br>440 | atc ctg (<br>Ile Leu \    | gtg cgc ccg<br>Val Arg Pro<br>445 | ccc gct c<br>Pro Ala P        | cg acc 15142<br>ro Thr        |
| att acc acc gtc<br>Ile Thr Thr Val<br>450 | 455                               | vai Fio A                 | 460                               | ASP HIS G                     | ly Thr<br>465                 |
| ctg ccg ctg cgc<br>Leu Pro Leu Arg        | 470                               | 4                         | i75                               | vai inr 1<br>4                | le Thr<br>30                  |
| gac gcc cgg cga<br>Asp Ala Arg Arg<br>485 | g cys ,                           | 490                       | ai his Lys                        | Ala Leu G<br>495              | ly Ile                        |
| gtc gct ccc aaa<br>Val Ala Pro Lys<br>500 |                                   | 505                       | iii Pile                          |                               |                               |
| cattctcatc tcgcc                          | cgaca acaaca                      | ccgg ctgg                 | ggcctg cgct                       | cggccg gca                    | tgtacgg 15392                 |
| cggcgccaag cggcg                          | ctcca gcgagca                     | accc cgtc                 | cgcgtc cgcg                       | gccact acc                    | gggcccc 15452                 |
| ctggggcgcc cacaa                          | gcgcg gcgtctd                     | ccac gcgc                 | accacc gtcg                       | acgacg cca                    | itcgacgc 15512                |
| cgtcgtggcc caggc                          | cagac gctacco                     | gccg gccc                 | aagtcg acgg                       | tggacg ccg                    | tcatcga 15572                 |
| cagcgtggtg gccga                          | cgcgc ggcgata                     | acgc tcga                 | cgcaag cggc                       | gtctgc acc                    | gccgtcg 15632                 |
| ccgtcccacc gccgc                          | catgc tggccgc                     | cag agcg                  | gtcctg agac                       | gcgcgc gcc                    | gcataga 15692                 |
| ccgccgagcc atgcg                          | ccgag ccgcggc                     | caa cgcc                  | agcgcg ggtc                       | gcgccc gto                    | gtcaggc 15752                 |
| cgcccggcag gccgc                          | cgccg ccatcgc                     | caa cctg                  | gcccaa cccc                       | ccggg gaa                     | acgtgta 15812                 |
| ctgggtgcga gacgc                          | gtcgg gcgtgcg                     | cgt gccg                  | gtgcgc accc                       | cccc ctc                      | ggagtta 15872                 |
| gaagacaaaa agacg                          | gacga agactga                     | gtt tccc                  | tgtcgt tgcca<br>Page 112          | gcatg agc                     | aagcgca 15932                 |

| agttcaaaga   | agagctgctg | gaggccctcg | tgcccgagat | ctacggcccg | gccgccgctg | 15992         |
|--------------|------------|------------|------------|------------|------------|---------------|
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| agcgggaaaa   | gaaagaggag | aagcaggaag | cagggttgct | agacgtcgac | gacggcgtgg | 16112         |
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| ccatgcaact   | catggtgccc | aaacggcaga | agctggagga | cgtgctggag | aacatgaaag | 16532         |
| tggatcccag   | catcgagccc | gaagtgaaag | tgcgacccat | caaggaagtg | ggcccgggcc | 16592         |
| taggcgtgca   | gacggtggac | attcagatcc | ccgtgcgcgc | ctccccgtt  | tctgccacca | 16652         |
| ctacgacggc   | cgtggaggcc | atggaaacgc | agacggagct | gcccgcggcc | ttggcggcag | 16712         |
| ccgccaccgc   | cgccgcggct | acccgagaga | tgggcatgca | gaccgacccc | tggtacgagt | 16772         |
| tcgccggccc   | cgcccgtcgt | ccacgagccc | gtcggtacgc | ggcgaccacc | tcccggctcc | 16832         |
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| tgcccaccgc   | gcgttaccac | cccagcatcg | tcatttaacc | tgcgctgccg | ttttgcagat | 17072         |
| ggctctgacg   | tgccgctttc | gcttccccgt | tcggcactac | cgaggaagat | ctcgccgtag | 17132         |
| gactggtcta   | gcgggcagcg | gtctccgacg | ccgccgccgc | gcggtgcacc | ggcgcatgaa | 17192         |
| gggcggcatt   | ctgcccgcgc | tgatccccat | tatcgccgcc | gccatcgggg | cgatccccgg | 17252         |
| cgtggcctcg   | gtggccttgc | aagcagctcg | caaaaattaa | ataaagaagg | cttgacactc | 17312         |
| actgcctggt   | cctgactgtt | tcatgcagac | aagacatgga | agacatcaat | tttgcgtcgt | 17372         |
| tggccccgcg   | gcacggctcg | cggccgttca | tgggcacctg | gaacgagatc | ggcaccagcc | 17432         |
| agctcaacgg   | gggcgctttc | agttggagca | gcctgtggag | cggcattaaa | aactttgggt | 17492         |
| ccacgattaa   | gacctatggc | aacaaggcgt | ggaacagtag | cactggtcag | atgctccgcg | 17552         |
| ataagctgaa   | ggaccagaac | ttccagcaga | aagtggtaga | cggtctggcc | tcgggcatca | 17612         |
| acggggtggt   | ggacctggcc | aaccaggcgg | tgcagaacca | gatcaaccag | cgtctggaga | 17672         |
| acagccgcca   | gccgcccgcg | gccctgcagc | agcgtccgca | ggtggaggag | gtggaagtgg | 17732         |
| aggagaagct   | gccgcccctg | gagacggtgt | cgccggtggg | cgtgcctagc | aagggggaga | 17792         |
| agcggccgcg   | gcccgagctc | gaggagaccc | tagtgaccga | gaccctggag | ccgccctcgt | 17852         |
| acgagcaggc   | cttgaaagag | ggggccacgc | ccctgcccat | gacccggccc | atcggaccca | 17912         |
| tggcccgacc ( | ggtctacggc | aaggaacaca | aagccgtgac | gctagagctg | cctccaccaa | 17972         |
|              |            |            |            | -          | J -33      | · · · · · · · |

| cgo        | ccad              | cat        | acco       | ררמ:       | ata a      |                   | 1+666             |            |            |              |                   |            |             |             |                   |       |
|------------|-------------------|------------|------------|------------|------------|-------------------|-------------------|------------|------------|--------------|-------------------|------------|-------------|-------------|-------------------|-------|
| cco        | caca              | ant        | cace       | cata       | ice :      | ccy               |                   | a co       | ctg        | gcad         | cg                | ccgt       | gcct        | cgt         | ccgccg            | 18032 |
| cto        | tnas              |            | cate       | -9 cy:     | ,          | cyc               | .cgcg             | gc gc      | ccga       | igtc         | g cgg             | gagco      | aac         | tgg         | agagca            | 18092 |
| 222        | acca              | act        | 2224       | .g         | ge c       | rggg              | jagtg             | ja aa      | agco       | tgaa         | ace               | gccg       | cgg         | tgti        | actatt            | 18152 |
| ccc        | igeta             | get        | adat       | acco       | ατ ο       | jtgtt             | gtat              | g cg       | ccto       | ctgt         | gto               | acgo       | cag         | aaaa        | agccag            | 18212 |
|            |                   |            |            |            |            |                   |                   |            |            |              |                   | ME         | T A         | la Tr<br>LO | c ccc<br>r Pro    | 18268 |
|            |                   | 515        |            |            |            |                   | 520               | )          | . 113      | 116          | : Ala             | 525        | Gir         | 1 Asp       | gcc<br>Ala        | 18316 |
|            | 530               | _          |            |            |            | 535               | LCu               | vai        | GIII       | Pne          | 540               | Arg        | Ala         | Thr         | gac<br>Asp        | 18364 |
| 545        |                   |            |            |            | 550        | , , ,             | _,                | riie       | Alg        | 555          | Pro               | ınr        | val         | Ala         | ccc<br>Pro<br>560 | 18412 |
|            |                   | •          |            | 565        | ••••       | ASP               | cgg<br>Arg        | 361        | 570        | Arg          | Leu               | Inr        | Leu         | 575         | Phe               | 18460 |
|            |                   |            | 580        | , g        | 0.4        | \2h               |                   | 585        | ıyr        | Ser          | Tyr               | Lys        | Va 1<br>590 | Arg         | ttc<br>Phe        | 18508 |
|            |                   | 595        |            |            |            | ,                 | cgc<br>Arg<br>600 | vai        | Leu        | Asp          | Met               | 605        | Ser         | Thr         | Tyr               | 18556 |
|            |                   |            |            |            |            |                   |                   |            |            |              | 020               |            |             |             | tac<br>Tyr        | 18604 |
| 625        |                   |            |            |            | 630        |                   | ctg<br>Leu        |            |            | 635          | СТУ               | Ala        | Pro         | ASN         | Pro<br>640        | 18652 |
|            |                   |            |            | 645        |            | , iop             | aac<br>Asn        | -93        | 650        | 261          | vai               | Arg        | GIY         | 655         | Ala               | 18700 |
|            |                   |            | 660        |            |            |                   | aca<br>Thr        | 665        | Ash        | ч            | TIG               | Gin        | va 1<br>670 | Ala         | Thr               | 18748 |
|            |                   | 675        |            |            |            |                   | tat<br>Tyr<br>680 | Λια        | Lys        | Lys          | Giu               | 685        | Gin         | Pro         | Glu               | 18796 |
| cca<br>Pro | caa<br>Gln<br>690 | gta<br>Val | ggg<br>Gly | caa<br>Gln | gaa<br>Glu | caa<br>Gln<br>695 | tgg<br>Trp        | aac<br>Asn | agc<br>Ser | gaa<br>Glu   | gcc<br>Ala<br>700 | agt<br>Ser | gat<br>Asp  | agt<br>Ser  | gat<br>Asp        | 18844 |
| 705        |                   |            | •          | •          | 710        |                   | aaa<br>Lys        | ASP        | * 1111     | 715          | PIO               | мет        | Pne         | Pro         | Cys<br>720        | 18892 |
| tac<br>Tyr |                   |            |            | 725        |            |                   |                   |            | 730        | <b>3</b> 111 | Giy               | ч          | Gin         | 735         | Thr               | 18940 |
| aat        | act               | gta        | gat        | ctg        | cag        | ttc               | ttt               | gcc        | tct<br>Pag | tca<br>e 11  | tcg<br>4          | gct        | acc         | tct         | acg               | 18988 |

| Asn               | Thr               | · Val             | Asp<br>740        | Leu<br>)          | G]n        | Phe               | Phe                | Ala<br>745        | Ser               | Ser        | Ser               | ` Ala             | Thr<br>750        | Ser               | Thr               |       |
|-------------------|-------------------|-------------------|-------------------|-------------------|------------|-------------------|--------------------|-------------------|-------------------|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| cct<br>Pro        | aaa<br>Lys        | gcc<br>Ala<br>755 | gta<br>Val        | Leu               | tat<br>Tyr | gcc<br>Ala        | gag<br>Glu<br>760  | gac<br>Asp        | gtg<br>Val        | gca<br>Ala | ata<br>Ile        | gaa<br>Glu<br>765 | gca<br>Ala        | cca<br>Pro        | gac<br>Asp        | 19036 |
| acc<br>Thr        | Cat<br>His<br>770 | ttg<br>Leu        | gtg<br>Val        | tac<br>Tyr        | aaa<br>Lys | ccg<br>Pro<br>775 | gca<br>Ala         | gtt<br>Val        | aca<br>Thr        | acc<br>Thr | acg<br>Thr<br>780 | ınr               | act<br>Thr        | agt<br>Ser        | tcc<br>Ser        | 19084 |
| 785               | Ť                 |                   |                   |                   | 790        | ٠,,,              | AIU                | Ala               | FIU               | 795        | Arg               | Pro               | Asn               | Tyr               | att<br>Ile<br>800 | 19132 |
| ggc<br>Gly        | ttc<br>Phe        | agg<br>Arg        | gat<br>Asp        | aat<br>Asn<br>805 | ttt<br>Phe | atc<br>Ile        | ggt<br>Gly         | ctc<br>Leu        | atg<br>Met<br>810 | ıyr        | tac<br>Tyr        | aac<br>Asn        | tcc<br>Ser        | act<br>Thr<br>815 | ggc<br>Gly        | 19180 |
| aat<br>Asn        | atg<br>Met        | ggt<br>Gly        | gtt<br>Val<br>820 | ttg<br>Leu        | gca<br>Ala | ggg<br>Gly        | caa<br>Gln         | gct<br>Ala<br>825 | tct<br>Ser        | cag<br>Gln | cta<br>Leu        | aac<br>Asn        | gcg<br>Ala<br>830 | gtg<br>Val        | gtt<br>Val        | 19228 |
|                   |                   | 835               | •                 | 9                 | ,,         |                   | 840                | Leu               | Ser               | ıyr        | GIN               | ctc<br>Leu<br>845 | Met               | Leu               | Asp               | 19276 |
|                   | 850               | _                 | •                 |                   |            | 855               |                    | rne               | 361               | MEL        | 860               | aac<br>Asn        | GIn               | Ala               | Val               | 19324 |
| 865               |                   |                   |                   |                   | 87Ò        |                   | 9                  |                   | 116               | 875        | ASII              | cat<br>His        | GIY               | vaı               | G1u<br>880        | 19372 |
|                   |                   |                   |                   | 885               | •          | ,                 |                    |                   | 890               | Сту        | Giy               | tcg<br>Ser        | Leu               | va i<br>895       | Thr               | 19420 |
|                   |                   |                   | 900               | •                 |            | •••               |                    | 905               | ASII              | ч          | ser               | aac<br>Asn        | Thr<br>910        | Trp               | Thr               | 19468 |
|                   |                   | 915               |                   |                   | -          |                   | 920                | <b>9</b>          | G.y               | Vai        | Giu               | atc<br>Ile<br>925 | GIY               | Ser               | Gly               | 19516 |
|                   | 930               |                   |                   |                   |            | 935               |                    | LCu               | Ala               | AIA        | 940               |                   | ırp               | Arg               | Ser               | 19564 |
| ttc<br>Phe<br>945 |                   |                   |                   |                   | 950        |                   |                    |                   | Leu               | 955        | ASP               | Giu               | ıyr               | Lys               | Leu<br>960        | 19612 |
| acc<br>Thr        |                   |                   |                   | 965               |            |                   |                    | Yab               | 970               | Lys        | ASII              | inr               | Tyr               | Asp<br>975        | Tyr               | 19660 |
| atg :<br>Met /    | aac<br>Asn        | ggc<br>Gly        | cgc<br>Arg<br>980 | gtg<br>Val        | gcc<br>Ala | gcc<br>Ala        | ccc<br>Pro         | agc<br>Ser<br>985 | tcc<br>Ser        | Ctc<br>Leu | gac<br>Asp        | acc Thr           | tac<br>Tyr<br>990 | gtc<br>Val        | aac<br>Asn        | 19708 |
| atc (             | gly ,             | gcg<br>Ala<br>995 | cgc<br>Arg        | tgg<br>Trp        | tcc<br>Ser | Pro /             | gac<br>Asp<br>1000 |                   | atg<br>Met        | gac<br>Asp | aac<br>Asn        | gtc<br>Val<br>100 | AS                | c cc<br>n Pr      | c ttc<br>O Phe    | 19756 |
| aac (<br>Asn I    | cac<br>His        | cac<br>His        | cgc<br>Arg        | aac<br>Asn        | gcg<br>Ala | gga<br>Gly        | Ct:<br>Le          | g cg<br>u Ar      | g Ty              | c cger Are | g Sei             | c at<br>r Me      | g c               | tg c              | tg<br>eu          | 19801 |

|            | 1010               | )          |            |            |            | 1015               |              |            |                   |            | 1020               | )          |            |            |   |       |
|------------|--------------------|------------|------------|------------|------------|--------------------|--------------|------------|-------------------|------------|--------------------|------------|------------|------------|---|-------|
| ggc<br>Gly | aac<br>Asn<br>1025 | ĞĨy        | cgc<br>Arg | tac<br>Tyr | gta<br>Val | ccc<br>Pro<br>1030 | Pne          | cac<br>His | atc<br>Ile        | caa<br>Glr | gtg<br>Val<br>1035 | Pro        | cag<br>Gln | aaa<br>Lys |   | 19846 |
| ttc<br>Phe | ttc<br>Phe<br>1040 | Ala        | atc<br>Ile | aaa<br>Lys | aac<br>Asn | ctc<br>Leu<br>1045 |              | ctc<br>Leu | ctc               | ccc        | ggg<br>Gly<br>1050 | Ser        | tac<br>Tyr | acc<br>Thr |   | 19891 |
| tac<br>Tyr | gag<br>Glu<br>1055 | ρ          | aac<br>Asn | ttc<br>Phe | cgc<br>Arg | aag<br>Lys<br>1060 | gac<br>Asp   | gtc<br>Val | aac<br>Asn        | atg<br>Met | atc<br>Ile<br>1065 | Leu        | cag<br>Gln | agc<br>Ser |   | 19936 |
| agc<br>Ser | ctg<br>Leu<br>1070 | ggt<br>Gly | aac<br>Asn | gac<br>Asp | ctc<br>Leu | cgc<br>Arg<br>1075 | gtc<br>Val   | gac<br>Asp | ggg<br>Gly        | gcc<br>Ala | agc<br>Ser<br>1080 | gtc<br>Val | agg<br>Arg | ttc<br>Phe |   | 19981 |
| gac<br>Asp | agc<br>Ser<br>1085 |            | aac<br>Asn | ctg<br>Leu | tac<br>Tyr | gcc<br>Ala<br>1090 | aac<br>Asn   | ttc<br>Phe | ttc<br>Phe        | ccc<br>Pro | atg<br>Met<br>1095 | Ala        | cac<br>His | aac<br>Asn |   | 20026 |
| acc<br>Thr | gcc<br>Ala<br>1100 |            | acg<br>Thr | ctc<br>Leu | gag<br>Glu | gcc<br>Ala<br>1105 | atg<br>Met   | ctg<br>Leu | cgc<br>Arg        | aac<br>Asn | gac<br>Asp<br>1110 | Thr        | aac<br>Asn | gac<br>Asp |   | 20071 |
| cag<br>Gln | tcg<br>Ser<br>1115 | ttc<br>Phe | aac<br>Asn | gac<br>Asp | tac<br>Tyr | ctc<br>Leu<br>1120 | tgc<br>Cys   | gct<br>Ala | gcc<br>Ala        | aac<br>Asn | atg<br>Met<br>1125 | Leu        | tac<br>Tyr | ccc<br>Pro |   | 20116 |
|            | ccc<br>Pro<br>1130 | gcc<br>Ala | aac<br>Asn | gcc<br>Ala | acc<br>Thr | agc<br>ser<br>1135 | gtg<br>Val   | ccc<br>Pro | atc<br>Ile        | tcc<br>Ser | att<br>Ile<br>1140 | Pro        | tcg<br>Ser | cgg<br>Arg |   | 20161 |
| aac<br>Asn | tgg<br>Trp<br>1145 | gcc<br>Ala | gcc<br>Ala | ttc<br>Phe | cgg<br>Arg | ggc<br>Gly<br>1150 | tgg<br>Trp   | agc<br>Ser | ttc<br>Phe        | acc<br>Thr | cgg<br>Arg<br>1155 | ctc<br>Leu | aag<br>Lys | acc<br>Thr |   | 20206 |
|            | gag<br>Glu<br>1160 | acc<br>Thr | ccc<br>Pro | tct<br>Ser | ctg<br>Leu | ggc<br>Gly<br>1165 | tcc<br>Ser   | ggc<br>Gly | ttc<br>Phe        | gat<br>Asp | ccc<br>Pro<br>1170 | Tyr        | ttc<br>Phe | acc<br>Thr |   | 20251 |
| tac<br>Tyr | tcg<br>Ser<br>1175 | ggc<br>Gly | tcc<br>Ser | atc<br>Ile | ccc<br>Pro | tac<br>Tyr<br>1180 | ctg<br>Leu   | gac<br>Asp | ggc<br>Gly        | acc<br>Thr | ttc<br>Phe<br>1185 | tac<br>Tyr | ctc<br>Leu | aac<br>Asn |   | 20296 |
| cac<br>His | act<br>Thr<br>1190 | ttc<br>Phe | aag<br>Lys | aag<br>Lys | gtc<br>Val | tcc<br>Ser<br>1195 | atc<br>Ile   | atg<br>Met | ttc<br>Phe        | gac<br>Asp | tcc<br>Ser<br>1200 | tcc<br>Ser | gtc<br>Val | agc<br>Ser | ; | 20341 |
|            | ccc<br>Pro<br>1205 | ggc<br>Gly | aac<br>Asn | gac<br>Asp | cgc<br>Arg | ctg<br>Leu<br>1210 | ctg<br>Leu   | acc<br>Thr | ccc<br>Pro        | aac<br>Asn | gag<br>Glu<br>1215 | ttc<br>Phe | gag<br>Glu | atc<br>Ile | ; | 20386 |
| Lys        | 1220               | acc<br>Thr | gtg<br>Val | gac<br>Asp | ggg<br>Gly | gaa<br>Glu<br>1225 | ggg<br>Gly   | tac<br>Tyr | aac<br>Asn        | gtg<br>Val | gcc<br>Ala<br>1230 | cag<br>Gln | tgc<br>Cys | aac<br>Asn | ; | 20431 |
| atg<br>Met |                    | aag<br>Lys | gac<br>Asp | tgg<br>Trp | ttc<br>Phe |                    | atc<br>Ile   | cag<br>Gln | atg<br>Met        | ctc<br>Leu | agc<br>Ser<br>1245 | cac<br>His | tac<br>Tyr | aac<br>Asn | 2 | 20476 |
|            | 1250               | ,          |            |            |            | tac<br>Tyr<br>1255 | <b>v</b> a 1 | FIU        | Giu               | ч          | 1260               | aag<br>Lys | gac<br>Asp | agg<br>Arg | 2 | 20521 |
|            | tac<br>Tyr<br>1265 | tct<br>Ser | ttc<br>Phe | ttc<br>Phe | cgc<br>Arg | aac<br>Asn<br>1270 | ttc<br>Phe   | Gin        | ccc<br>Pro<br>age | Met        |                    | cgc<br>Arg | cag<br>Gln | gtg<br>Val | 2 | 20566 |

|   | gtc<br>Val | gac<br>Asp<br>1280 | Thr          | acc<br>Thr | acc<br>Thr | tac<br>Tyr   | acc<br>Thr<br>1285 | gac<br>Asp   | tac<br>Tyr | aaa<br>Lys        | aac<br>Asn | gtc<br>Val<br>1290 | Thr        | ctc<br>Leu        | CCC<br>Pro       | 20611 |
|---|------------|--------------------|--------------|------------|------------|--------------|--------------------|--------------|------------|-------------------|------------|--------------------|------------|-------------------|------------------|-------|
|   | ttc<br>Phe | cag<br>Gln<br>1295 | HIS          | aac<br>Asn | aac<br>Asn | tcg<br>Ser   | ggg<br>Gly<br>1300 | ttc<br>Phe   | gtg<br>Val | gga<br>Gly        | tac<br>Tyr | atg<br>Met<br>1305 | ggc<br>Gly | ccc<br>Pro        | acc<br>Thr       | 20656 |
|   |            | cgc<br>Arg<br>1310 | gag<br>Glu   | ggg<br>Gly | cag<br>Gln | gcc<br>Ala   | tac<br>Tyr<br>1315 | ccc<br>Pro   | gcc<br>Ala | aac<br>Asn        | tac<br>Tyr | CCC<br>Pro<br>1320 | tac<br>Tyr | CCC<br>Pro        | ctg<br>Leu       | 20701 |
|   | atc<br>Ile | ggc<br>Gly<br>1325 | aag<br>Lys   | acc<br>Thr | gcc<br>Ala | gtg<br>Val   | ccc<br>Pro<br>1330 | agc<br>Ser   | ctc<br>Leu | acg<br>Thr        | cag<br>Gln | aaa<br>Lys<br>1335 | aag<br>Lys | ttc<br>Phe        | ctc<br>Leu       | 20746 |
|   | tgc<br>Cys | gac<br>Asp<br>1340 | Arg          | acc<br>Thr | atg<br>Met | tgg<br>Trp   | cgc<br>Arg<br>1345 | atc<br>Ile   | ccc<br>Pro | ttc<br>Phe        | tcc<br>Ser | agt<br>Ser<br>1350 | aac<br>Asn | ttc<br>Phe        | atg<br>Met       | 20791 |
|   | tcc<br>Ser | atg<br>Met<br>1355 | ggg<br>Gly   | gcg<br>Ala | ctc<br>Leu | acc<br>Thr   | gac<br>Asp<br>1360 | ctg<br>Leu   | ggg<br>Gly | cag<br>Gln        | aac<br>Asn | atg<br>Met<br>1365 | ctg<br>Leu | tac<br>Tyr        | gcc<br>Ala       | 20836 |
|   | aac<br>Asn | tcc<br>Ser<br>1370 | gcc<br>Ala   | cac<br>His | gcc<br>Ala | ctc<br>Leu   | gac<br>Asp<br>1375 | atg<br>Met   | acc<br>Thr | ttc<br>Phe        | gag<br>Glu | gtg<br>Val<br>1380 | gac<br>Asp | ccc<br>Pro        | atg<br>Met       | 20881 |
| • | gat<br>Asp | gag<br>Glu<br>1385 | ccc<br>Pro   | acg<br>Thr | ctt<br>Leu | ctc<br>Leu   | tat<br>Tyr<br>1390 | gtt<br>Val   | ctg<br>Leu | ttc<br>Phe        | Glu        | gtg<br>Val<br>1395 | ttc<br>Phe | gac<br>Asp        | gtc<br>Val       | 20926 |
| , | gtg<br>Val | cgc<br>Arg<br>1400 | atc<br>Ile   | cac<br>His | cag<br>Gln | Pro          | cac<br>His<br>1405 | cgc<br>Arg   | ggc<br>Gly | gtc<br>Val        | Ile        | gag<br>Glu<br>1410 | gcc<br>Ala | gtc<br>Val        | tac<br>Tyr       | 20971 |
| ļ | ctg<br>Leu |                    | acg<br>Thr   | ccg<br>Pro | ttc<br>Phe | ser          | gcc<br>Ala<br>1420 | ggt<br>Gly   | aac<br>Asn | gcc<br>Ala        | 1111.      | acc<br>Thr<br>1425 | taa        | ggag              | ggggcc           | 21020 |
| 9 | gccg       | acgga              | t gg         | gctc       | cagc       | gag          | ccgga              | gc t         | gatc       | acca <sup>.</sup> |            |                    | asc        | ctaa              | gctgcg           | 21000 |
| 9 | ggcc       | ctact              | t cc         | tggg       | cacc       | ttt          | gacaa              | ac a         | cttc       | CCaa              | o ce       | tcata              | gac        | c cyy             | acaagc           | 21080 |
| 1 | tggc       | ctgcg              | c ca         | tcgt       | caac       | acc          | -<br>accaa         | ac a         | caaa       | acca;             | g CC       | acata              | gcg ·      | ccgc              | acaagc<br>tggccc | 21140 |
| 1 | tggc       | ctgga              | a cc         | cccg       | cagc       | cga          | accta              | it ac        | ctc        | ttcas             | y cgg      | gcy cc             | cac ·      | tggc <sup>.</sup> | tggccc<br>cggacg | 21200 |
| a | acag       | gctca              | g gc:        | agat       | ctac       | cag          | ttcaac             | it a         | .022       | acce              |            | LCTTC              | ggc ·      | ttct              | cggacg<br>ccctcg | 21260 |
| c | ctc        | cacco              | c cga        | acca       | ctac       | atca         | accete             | n to         | -9uai      | tees              | . gci      | ccgg               | cgc a      | agcgo             | gcccc            | 21320 |
| g | ctc        | gccg               | c cto        | acaa       | ctc        | ttci         | tactac             | .g .c        | aay:       | ctcac             | . cca      | igacc              | gtc (      | aggg              | gcccg            | 21380 |
| c | ctc        | ccca               | t gga        | acaa       | caac       | ccc          | eccato             | .a .i        | cto        | rtgca             | ı cgc      | cttc               | gtg d      | gcto              | gcccg            | 21440 |
| t | tcag       | agtc               | c cca        | agata      | aaa        | ccc          | ccctc              | g ac         |            | ctac              | ggg        | cgtto              | CC a       | ıacag             | catgc            | 21500 |
| t | ggct       | cggca              | a cto        | CCCC       | tac        | ttt          | ייייייי            | c ac         | .cgca      | iacca             | gga        | ggaad              | ctc t      | acgo              | cttcc            | 21560 |
| t | tgac       | aaaaı              | t daa        | coar       | tan        | attt         | .yccyC             | a ac         | .cgcg      | jagcg             | cat        | agaaa              | ag g       | ccac              | cgcgt            | 21620 |
| a | ccac       | acgto              | cac          | acat:      | מכא        | 02C+         | ++++               | y da<br>+ ++ | aaac       | acto              | aat        | aaago              | ct t       | tatt              | ggttc            | 21680 |
| g | Ctga       | tggad              | aan          | laaas      | Cat        | taca         | atac+              |              | aaaa       | gggc              | tcc        | gcctc              | ct c       | gtcg              | ccgtg            | 21740 |
| C | agca       | gctto              | , <u>9</u> 9 | Saaa       | יבאר       | ryry<br>retr | atact              | y ca<br>•    | ygcg       | ggag              | ctc        | catct              | ga a       | ctcg              | ggaat            | 21800 |
|   | <u> </u>   | 5                  | . 95         | -233       | 236        |              | gacgt              | L CT         |            |                   |            | ttgcg              | ca c       | cagc              | tgcag            | 21860 |
|   |            |                    |              |            |            |              |                    |              | Pag        | ge 11             | L <b>7</b> |                    |            |                   |                  |       |

| ggcgccca  | agc aggtcgggc | g cggagatctt | : gaagtcgcag           | ttggggccc  | t ggttgccgcg | 21920 |
|-----------|---------------|--------------|------------------------|------------|--------------|-------|
| ggagttgd  | gg tacaccggg  | t tggcgcactg | gaacaccago             | acgctgggg  | t gctcgatgct | 21980 |
| ggccagcg  | cc gtcttgtcg  | g tcacctcgtc | gccgcgcagg             | gactccgcg  | t tgctcagcgc | 22040 |
| gaaggcgg  | tc agcttgcac  | a gctgccgacc | cagcacgggc             | accccgctc  | g gctggttcag | 22100 |
| gcagtcgc  | ag cgcatagcc  | a tcagcagccg | cttctgcccg             | tgctgcatc  | t toggatagto | 22160 |
| ggctcgca  | tg aaggcctcc  | a tctgccggaa | ggccgtctgc             | gccttgctg  | c cctccgagaa | 22220 |
| gaacagco  | cg caggacttg  | c cggagaacac | gttgttgccg             | cagctcacg  | t Cttccacaca | 22280 |
| gcagcgcg  | cg tcgtcgttc  | t tcagctgcac | cacgctgcgg             | ccccagcggt | tctgcaccac   | 22340 |
| cttggtct  | tg ccgggatgt  | t ccttcagggc | ccgctggccg             | ttctcgctg  | tcacqtccat   | 22400 |
| ctccacca  | cc tgctccttc  | t ggatcatctc | cagcccgtgg             | tagcagcgca | gcacgccctc   | 22460 |
| ctgctcgg  | tg cacccgtgc  | a gccagacggc | gcagccggtc             | ggctccagct | gttgaggttt   | 22520 |
| caccccgg  | cg taggtctcc  | a cgtacgcccg | caggaagcgg             | cccatcatct | ccacaaaggt   | 22580 |
| cttctgac  | cg gtgaaggtc  | a gctgcagccc | gcgatgctcc             | tcgttgagco | acgtctgaca   | 22640 |
| gatcttgc  | gg tacaccttg  | c cctgctcggg | cagaaacttg             | aaagcggcct | tctcctcggg   | 22700 |
| ctccacgt  | gg tacttctcca | a tcagcgccga | catcagctcc             | atgcccttct | cccaggccga   | 22760 |
| caccagcg  | gc tccgcgcgg  | g ggttcaccac | cgccatgcct             | cgggaagtgc | cggggcactc   | 22820 |
| atcttcct  | cc tcctcctcg  | cttcttcttg   | aggcggcggt             | ggcggcagtt | gtctcacgaa   | 22880 |
| tctcttgc  | cg ttggccttc  | ggacgatctc   | cacgccgggg             | tgggtgaacc | cgtgggccac   | 22940 |
| caccactt  | cg tcctcttcct | cttcgctgtc   | gggcacgact             | tcgggagagg | gaggcggcgg   | 23000 |
| aggaaccg  | gt gcggccacto | gcggccatcgc  | ggcgttcttg             | cgcgccttct | tggggggcag   | 23060 |
| aggcggcg- | tc tcgcgctccg | ggctggtctc   | ttgcaggtag             | ggcgtgatgg | tgtgggaggt   | 23120 |
| ggggcgct  | ct ggctgacggc | cggccatgct   | gatgcttgac             | tcctaggcga | aaagatggag   | 23180 |
| gaggatct  | ta gacagccgca | gcccgtctcc   | gaaaccttaa             | ccacccccgc | ctctgaggtc   | 23240 |
| ggcgccgg  | cg agctagacat | gcaacgggag   | gaggaggagg             | acgtgcgagt | ggagcaagac   | 23300 |
| ccgggcta  | g tgacgccgcc  | cgaggacggc   | gaggagccgc             | aggcaccggc | gccaacgctc   | 23360 |
| agcgaagc  | g actacctggg  | aggggaggac   | gacgtgctgc             | tgaagcacct | ggcgcggcaa   | 23420 |
| agcaccato | g tgcaggaggc  | cctcaaggag   | cgcgaggagg             | tcccgctgac | ggtggaggag   | 23480 |
| ctcagccgg | g cctacgaagc  | caacctcttc   | tcgccgcggg             | tgcccccaa  | gaagcaggcc   | 23540 |
| aacggcaco | t gcgagcccaa  | ccccgcctc    | aacttctacc             | ccgtctttgc | ggtgcccgag   | 23600 |
| gegetgge  | a cctatcacat  | cttcttcaag   | aaccagcgca             | tcccctctc  | ataccacacc   | 23660 |
| aaccgcacc | c gcgccgaccg  | cctcctgcat   | ctccgagccg             | gcgccgccat | acctgagatc   | 23720 |
| ycctccctg | g aggaagtccc  | caagatcttc   | gaaggtctcg             | gcaaggacga | gaagegegeg   | 23780 |
| gcaaacgct | c tggaaaagaa  | cgagagcgag   | ggtcagaacg             | tgctggtcga | gctggaaggc   | 23840 |
| gacaacgcg | c gtctggccgt  | gctcaaacgc   | accatcgaag             | tctcccactt | cacctaccc    | 23900 |
| gcgctcaac | c ttccccccaa  | ggtcatgcgc   | tcggtcatgg<br>Page 118 | atcagctgct | catcaagcgc   | 23960 |
|           |               |              | · age II(              | •          | -            |       |

| go  | cgagcccc  | tcgagaacga              | ctccgaggtg   | gattccgag   | g acggaaaac              | c cgtggtctcg | 24020 |
|-----|-----------|-------------------------|--------------|-------------|--------------------------|--------------|-------|
| ga  | icgaggagc | : tcgcgcgctg            | gctgggcacg   | g caggacccc | g ccgagttgc              | a agageggege | 24080 |
| aa  | igatgatga | tggcggccgt              | gctggtcacc   | gccgagctc   | g agtgcctgc              | a gcgcttcttc | 24140 |
| gc  | cgaccccc  | agaccctgcg              | caaggtcgag   | gagtccctg   | c actacgcct              | t ccgccacggc | 24200 |
| τα  | cgtgcgcc  | aggcctgcaa              | gatctccaac   | gtggagctta  | a gcaacctgg <sup>.</sup> | t ctcctacato | 24260 |
| gg  | catcctgc  | acgagaaccg              | cctcgggcag   | aacgtcctc   | actgcaccc                | t gaccggggag | 24320 |
| gc  | ccgccgcg  | actacgtccg              | cgactgcatc   | tacctctttc  | tcaccctcac               | ctggcagacc   | 24380 |
| gc  | catggggg  | tctggcagca              | gtgtctggag   | gagcgcaaco  | ttcgcgagct               | cgacaagcta   | 24440 |
| ct  | gagccgcg  | agcgccgcga              | gctctggacg   | gctttcagcg  | agcgcaccgo               | cgcctaccat   | 24500 |
| Cτ  | ggccgacc  | tcatcttccc              | cgagcgactc   | aggcaaacco  | tccagaacg                | cctgcccgac   | 24560 |
| ττ  | tgtcagcc  | agagcatgct              | gcaaaacttt   | cgctccttca  | tcctggagcg               | atccggcatc   | 24620 |
| ττ  | gcccgcca  | tgagctgcgc              | cctgccctcc   | gatttcgtcc  | ccctctatta               | tcgcgagtgc   | 24680 |
| CC  | cccgccgc  | tctggagcca              | ctgctacctg   | ctgcgtctgg  | ccaactacct               | cgcccaccac   | 24740 |
| TC  | cgacctca  | tggaagactc              | cagcggcgag   | gggctgctgg  | agtgccactg               | CCGCtGCaac   | 24800 |
| CT  | ctgcaccc  | cccaccgctc              | gctggtctgc   | aacaccgagc  | tgctcagcga               | qacqcaaqtq   | 24860 |
| ate | eggtacct  | ttgagatcca              | gggaccagag   | gggccggagg  | gtgcttccaa               | cctcaagctc   | 24920 |
| age | cccggcgc  | tctggacttc              | cgcctacctg   | cgcaaattta  | tccccgagga               | ctatcacacc   | 24980 |
| ca  | ccagatcc  | aattctacga              | agaccaatcg   | cgacccccca  | aagcccccct               | cacqqcctat   | 25040 |
| gto | catcaccc  | agagccagat              | tctggcccaa   | ttgcaagcca  | tccagcaggc               | ccqccaagag   | 25100 |
| ττα | ctcctga   | aaaagggtca              | cggggtctat   | ctggaccccc  | agaccggcga               | ggaactcaac   | 25160 |
| acc | ccgtcac   | cctccgccgc              | cgcttcgtgc   | cgcccgcaga  | accatgccgc               | CCaaagggaa   | 25220 |
| Cda | igcaggcc  | atcgcccagc              | ggcgggccaa   | gaagcagcaa  | gagctccagg               | agcagtggga   | 25280 |
| cga | iggagtcc  | tgggacagcc              | aggcggagga   | agtctcagac  | gaggaggagg               | acatggagag   | 25340 |
| Ctg | iggacagc  | ctagacgagg              | aggaggaggc   | cgaggagcta  | gaggacgagc               | CtCtcgagga   | 25400 |
| gga | agagccc   | agcagcgccg              | cggcaccatc   | ggcttccaaa  | gaagcggctc               | ggagccggcc   | 25460 |
| ggc | cccgaag   | cagcagaagc              | agcaacagcc   | gccaccgtcg  | ccccgacgc                | caccaccagg   | 25520 |
| CEC | actcaaa   | gccagccgta              | ggtgggacgc   | ggtgtccatc  | gcgggatcgc               | ccaaagcccc   | 25580 |
| agt | cggtaag   | ccacccgggc              | ggtcgcggcg   | ggggtactgt  | tcctggcgcc               | CCCacaaaaa   | 25640 |
| Caa | gatcgtc   | gcctgcctcc              | agcactgccg   | gggcaacatc  | tccttcgcgc               | qqcqctactt   | 25700 |
| gct | CTTCCac   | gacggggtgg              | cggtgccgcg   | caacgtcctc  | tactattacc               | gtcatctcta   | 25760 |
| Cay | cccctac   | gagacagaag <sub>(</sub> | gcccggcctc   | cgcgtaagac  | cagccgccag               | acqutctcc+   | 25820 |
| ceg | ccatcgc   | gacccgccag              | gactcggccg   | ccacgcagga  | gctcagaaaa               | Cacatette    | 25880 |
| CCa | ccctgta · | tgctatcttc (            | cagcagagcc ( | gcggccagca  | gctggaactg               | aaaqtaaaaa   | 25940 |
| acc | gctccct ( | gcgttcgctc a            | acccgcagct ( | gtctgtacca  | caggagggaa               | gaccaactgc   | 26000 |
|     |           |                         |              | Page 110    |                          | <b>5</b> -   |       |

| agcgcacgct cgaggacgcc gaggcactgt tcaataaata ctgctcggtg tctcttaagg 26060       |
|---|
| actgaaagcc cgcgcttttt cagaggctca ttacgtcatc atcatcatga gcaaggacat 26120       |
| tcccacgcct tacatgtgga gctaccagcc gcagatggga ctggcggccg gcgcctccca 26180       |
| ggattactcc agtcgcatga actggctgag tgccggcccc cacatgatcg ggcgggtcaa 26240       |
| tgggattegt gecaecegea ateagataet getggaacag geegeeetea eetecaecee 26300       |
| gcgacgtcag ctgaacccgc ccgcttggcc cgccgcccag gtgtaccagg aaaaccccgc 26360       |
| cccgaccaca gtcctcctgc cacgcgacgc ggaggccgaa gtccagatga ctaactccgg 26420       |
| ggcgcaatta gcgggcggcg cccgccacgt cgtcgctccc gggtacagag gtcggcccgc 26480       |
| accctacccc tccggcccta taaagaggct gatcattcga ggccgaggta tccagctcaa 26540       |
| cgacgaggtg gtgagctcct cgaccggtct tcggcccgac ggagtcttcc agcttggagg 26600       |
| cgccggccgc tcttccttca ccactcgcca ggcctacctg acgctccaga gctcttcctc 26660       |
| ccagcctcgc tccggcggca tcggcaccct ccagttcgtg gaggagttcg tgccctcggt 26720       |
| ctacttcaac ccgttctccg gctctcccgg ccgctacccg gacagcttca tccccaacta 26780       |
| cgacgcggtg agcgaatccg tggacggcta cgattgatga ccgatggtgc ggccgtaact 26840       |
| gcgcggcggc aacatctgca tcactgccat cgtcctcggt gcttcgcccg ggaggcctgt 26900       |
| gagttcatct acttccagct cgccccggac cagcttcagg gccsttcagg                        |
| ctcgtgatag aggaagagt cgagagtagc tgcctaggst access                             |
| ctagtcgaga gggaacgcgg taggaccacc ctcaccctct actgcatate                        |
| gaattacatg aagatctgtg ttgccttcta tgtgccgaac aataacaat and                     |
| cctacatcca caataaacca gaatttggaa actcctttcg tttgttcas                         |
| Met Lys   |
| cgc gcc cgc ctc gac gac ttc aac ccc gtc tac ccc tat gac 27242                 |
| Arg Ala Arg Leu Asp Asp Phe Asn Pro Val Tyr Pro Tyr Asp 1430 1435 1440        |
| act ccc aac got coc tot out   |
| Thr Pro Asn Ala Pro Ser Val Pro Phe Ile Thr Pro Pro Phe Val  1445  1450  1455 |
| tcc tcg gac ggc ttg caa gaa aaa cca ccc ggc ggc                               |
| 1460 1465 FIO PRO Gly Met Leu Ser Leu   |
| aac tac caa gat cct att acc are   |
| 1475 1480 1480 Ash Gly Ala Leu Thr Leu  |
| aag ctt ggc agc gga ctg aac ata   |
| 1490 Leu Asn Ile Asn Gln Asp Gly Glu Leu Thr                                  |
| tca gac gcc agc gtt ctc gts act   |
| 1505 1510 Pro Pro Ile Thr Lys Ala Ash   |
| aac aca ata ggc cta gcc ttc aat gga act att                                   |
| 1520 Ala Pro Leu Thr Leu Gln Ser  |
| Page 120  |
|   |

| ga<br>As   | t ac<br>p Th   | t tta<br>r Leu<br>153  | aa<br>As:<br>5  | t ct <sup>.</sup> | t gci<br>u Ala                          | tgt<br>a Cys | aac<br>Asn<br>154  | Ala            | c cc<br>a Pr | a ct<br>o Le | t ac<br>u Th | c gtg<br>r Val<br>154  | G1         | ia ga<br>n A | ac<br>sp | 27557 |
|------------|----------------|------------------------|-----------------|-------------------|---|--------------|--------------------|----------------|--------------|--------------|--------------|------------------------|------------|--------------|----------|-------|
| aa<br>As   | t ag<br>n Ar   | g ttg<br>g Leu<br>155  | GI              | a ata<br>y Ile    | a aca<br>• Thr                          | tac<br>Tyr   | aac<br>Asn<br>155  | Sei            | t cc<br>r Pr | c ct<br>o Le | c ac<br>u Th | c ttg<br>r Leu<br>156  | G7         | a aa<br>n As | ac<br>sn | 27602 |
| ag<br>Se   | c gaa<br>r Gl  | a ctt<br>u Leu<br>156  | gco<br>Ala<br>5 | c cta<br>a Lei    | a gcg<br>I Ala                          | gto<br>Val   | acc<br>Thr<br>1570 |                | ) CC         | t ct         | t ga<br>u As | c act<br>p Thr<br>157  | _ A1       | c aa<br>a As | at<br>sn | 27647 |
| aa<br>Ası  | c aca<br>n Thi | a ctt<br>r Leu<br>1580 | gcg<br>Ala<br>O | g ctt<br>a Leu    | aaa<br>Lys                              | acc<br>Thr   | gcc<br>Ala<br>1585 | Arc            | CC1          | t ata        | a at         | t aca<br>e Thr<br>159  | As         | c to<br>n Se | t        | 27692 |
| Asr        | 1 Asi          | gag<br>Glu<br>1595     | 5               |                   | LCu                                     | 2ci          | 1600               | ) ASP          | Ala          | Pro          | ) Lei        | a aac<br>J Asn<br>160! | Th<br>5    | c ag<br>r Se | IC<br>er | 27737 |
|            |                |                        |                 |                   |   |              | TOT)               | ,              |              |              |              | 9 999<br>1 Gly<br>1620 | ct:<br>Lei | a gt<br>u Va | t<br>1   | 27782 |
|            |                | 1625                   | ;               | 9                 | • • •                                   | LCu          | 1630               | )              | ASI          | Pro          | ) Lei        | tac<br>Tyr<br>1635     | Lei        | g ca<br>u Gl |          | 27827 |
|            |                | 1640                   | ctc<br>Leu      | tca<br>Ser        | cta<br>Leu                              | gcc<br>Ala   | att<br>Ile<br>1645 | GIU            | cgc<br>Arg   | cca<br>Pro   | ttg<br>Leu   | gct<br>Ala<br>1650     | Lei        | a ac<br>J Th | t<br>r   | 27872 |
| Thr        | Thr            | ggt<br>Gly<br>1655     | ser             | мет               |   | Met          | Gln<br>1660        | Tie            | tcc<br>Ser   | caa<br>Gln   | CCa<br>Pro   | tta<br>Leu<br>1665     | LVS        | gt<br>Va     | 9        | 27917 |
| 9,4        | Asp            | gga<br>Gly<br>1670     | ser             | tta<br>Leu        | agc<br>Ser                              | ttg<br>Leu   | agc<br>Ser<br>1675 | att<br>Ile     | gaa<br>Glu   | agc<br>Ser   | cct<br>Pro   | cta<br>Leu<br>1680     | Asn        | cta<br>Le    |          | 27962 |
| Lys        | Asn            | gga<br>Gly<br>1685     | Asn             |                   | • |              | 1690               | 1111           | GIN          | ser          | Pro          | cta<br>Leu<br>1695     | Thr        | gto<br>Va    | Ī        | 28007 |
|            |                | 1700                   |                 |                   |   |              | 1705               | mr             | inr          | АІА          | Pro          | tta<br>Leu<br>1710     | Thr        | gtt<br>Val   |          | 28052 |
| Gin        | Asn            | aac<br>Asn<br>1715     | Ăla             |                   |   |              | 1720               |                | tta<br>Leu   | ctg<br>Leu   | ccg<br>Pro   | ctt<br>Leu<br>1725     | aga<br>Arg | cta<br>Leu   | l<br>I   | 28097 |
| Phe        | aat<br>Asn     | Asn<br>1730            | acc<br>Thr      | tca<br>Ser        | ctg<br>Leu                              | GIY          | gtg<br>Val<br>1735 | gca<br>Ala     | ttc<br>Phe   | aac<br>Asn   | cca<br>Pro   | ccc<br>Pro<br>1740     | att<br>Ile | tct<br>Ser   |          | 28142 |
| Ser        | gca<br>Ala     | Asn<br>1745            |                 |                   |   |              | 1,20               | Ash            | TIG          | ч            | ASN          | Gly<br>1755            | ctt<br>Leu |              |          | 28187 |
| Leu        |                | Tyr<br>1760            |                 | •                 |   | :            | 1765               | ASII           | TIG          | GIY          | GIY          | 1770                   | cta<br>Leu | Glň          |          | 28232 |
| ttt<br>Phe | Asn            | aac<br>Asn<br>1775     | ggt<br>Gly      | gct<br>Ala        | att a<br>Ile -                          |              | gct<br>Ala<br>L780 | tcc ;<br>Ser ; | ata<br>Ile   | aat<br>Asn   | Ala          | gct<br>Ala<br>1785     | ctg<br>Leu | ccg<br>Pro   |          | 28277 |

| ttg            | j ca       | a tat              | tc                         | c aa           | t aad      |            |                    | • •        |                |                |              |                    |             |                |     |       |
|----------------|------------|--------------------|----------------------------|----------------|------------|------------|--------------------|------------|----------------|----------------|--------------|--------------------|-------------|----------------|-----|-------|
|                |            |                    | _                          |                |            |            | ctt<br>Leu<br>179  | ,          |                |                |              | 180                | 0           | c ggg<br>y Gly |     | 28322 |
| Leu            | ı Arç      | tac<br>Tyr<br>180  | Ası<br>5                   | c gge<br>n Gly | act<br>Thr | tac<br>Tyr | aaa<br>Lys<br>1810 | ASI        | t tta<br>n Lei | a gco<br>u Ala | gtc<br>Val   | aaa<br>Lys<br>181  | Th          | c gac<br>r Asp |     | 28367 |
| tct<br>Ser     | ttt<br>Phe | agg<br>Arg<br>1820 | 99<br>G1 <sub>2</sub><br>O | t cti<br>y Lei | gaa<br>Glu | att<br>Ile | gac<br>Asp<br>1825 | Sei        | t aat<br>r Asr | t cac          | ttc<br>Phe   | ctg<br>Leu<br>1830 | Йa          | g cca<br>l Pro |     | 28412 |
| aga<br>Arg     | ctg<br>Lei | ggt<br>Gly<br>183! | tci<br>Sei                 | t ggt<br>r Gly | cta<br>Leu | aag<br>Lys | ttt<br>Phe<br>1840 | ĀS         | t caa<br>O Gln | tat<br>Tyr     | ggg          | tac<br>Tyr<br>1845 | Il          | t agc<br>e Ser |     | 28457 |
| gtc<br>Val     | ata<br>Ile | cct<br>Pro<br>1850 |                            | a act<br>Thr   | gtt<br>Val | acg<br>Thr | cca<br>Pro<br>1855 | 1111       | a aca<br>Thr   | ctt<br>Leu     | tgg<br>Trp   | act<br>Thr<br>1860 | Th          | a gca<br>r Ala |     | 28502 |
| gac<br>Asp     | cct<br>Pro | tct<br>Ser<br>1865 | Pro                        | aac<br>Asn     | gct<br>Ala | act<br>Thr | ttt<br>Phe<br>1870 | Tyr        | gac<br>Asp     | agc<br>Ser     | tta<br>Leu   |                    | gc:<br>Ala  | t aag<br>a Lys |     | 28547 |
| gta<br>Val     | tgg<br>Trp | ctg<br>Leu<br>1880 |                            | tta<br>Leu     | gta<br>Val | aaa<br>Lys | tgc<br>Cys<br>1885 | ASII       | ggc            | atg<br>Met     | gtt<br>Val   |                    | gga<br>G1v  | a acc<br>/ Thr |     | 28592 |
| ata<br>Ile     | gcc<br>Ala | ata<br>Ile<br>1895 | aag<br>Lys                 | gct<br>Ala     | tta<br>Leu | aaa<br>Lys | ggt<br>Gly<br>1900 | act<br>Thr | ctg<br>Leu     | ctc<br>Leu     | caa<br>Gln   |                    | aco<br>Thr  | gct<br>Ala     |     | 28637 |
| agt<br>Ser     | ttt<br>Phe | att<br>Ile<br>1910 | tct<br>Ser                 | ttt<br>Phe     | gtt<br>Val | atg<br>Met | tat<br>Tyr<br>1915 | 1116       | tac<br>Tyr     | agc<br>Ser     | aat<br>Asn   | ggc<br>Gly<br>1920 | Thr         | aga<br>Arg     |     | 28682 |
| aga<br>Arg     | act<br>Thr | aac<br>Asn<br>1925 | tac<br>Tyr                 | CCC<br>Pro     | acg<br>Thr | ttt<br>Phe | gaa<br>Glu<br>1930 | 7311       | gaa<br>Glu     | ggc<br>Gly     | ata<br>Ile   |                    | <b>a</b> ct | agt<br>Ser     |     | 28727 |
| agt<br>Ser     | gct<br>Ala | aca<br>Thr<br>1940 | tgg<br>Trp                 | ggt<br>Gly     | tat<br>Tyr | cgt<br>Arg | caa<br>Gln<br>1945 | gga<br>Gly | aac<br>Asn     | tcg<br>Ser     | gca<br>Ala   | aac<br>Asn<br>1950 | acc<br>Thr  | aac<br>Asn     | ;   | 28772 |
| gtc<br>Val     | acc<br>Thr | agt<br>Ser<br>1955 | gcc<br>Ala                 | gtt<br>Val     | gaa<br>Glu | ttt<br>Phe | atg<br>Met<br>1960 | cct<br>Pro | agc<br>Ser     | tcc<br>Ser     | ınr          | aga                | tat<br>Tyr  | cct<br>Pro     | ;   | 28817 |
| gtt<br>Val     | aac<br>Asn | aag<br>Lys<br>1970 | ggt<br>Gly                 | act<br>Thr     | gag<br>Glu | gtt<br>Val | cag<br>Gln<br>1975 | aac<br>Asn | atg<br>Met     | gaa<br>Glu     | ctc<br>Leu   |                    | tac<br>Tyr  | act<br>Thr     | 2   | 28862 |
| ttc<br>Phe     | ttg<br>Leu | cag<br>Gln<br>1985 | gga<br>Gly                 | gac<br>Asp     | CCC<br>Pro | act<br>Thr | atg<br>Met<br>1990 | gcc<br>Ala | ata<br>Ile     | tca<br>Ser     | ttt<br>Phe   | caa<br>Gln<br>1995 |             | att<br>Ile     | 2   | 8907  |
| tat<br>Tyr     | Asn        | cat<br>His<br>2000 | gct<br>Ala                 | ttg<br>Leu     | gaa<br>Glu | ٠.,        | tac<br>Tyr<br>2005 | tct<br>Ser | tta<br>Leu     | aaa<br>Lys     | ttt :<br>Phe | acc                | tgg<br>Trp  | cga<br>Arg     | 2   | 8952  |
| gtt (<br>Val / | Arg        | aac<br>Asn<br>2015 | agg<br>Arg                 | gaa<br>Glu     | cgc<br>Arg | 1116       | gat<br>Asp<br>2020 | atc<br>Ile | ccc<br>Pro     | tgc<br>Cys     | tgt :        | tct                | ttt<br>Phe  | tct<br>Ser     | 2   | 8997  |
| tac a          | Ile '      | acg<br>Thr<br>2030 | gaa<br>Glu                 | gaa<br>Glu     | taa        | acac       | tgttt              | t tc       | tttt           | caat           |              | _                  | tc          |                | 2   | 9045  |
| tgct1          | ttt        | ta ca              | cagt                       | tcga           | acc        | gtcag      | gac t              | ccct<br>Pa | cccc<br>age 1  | c cti<br>l22   | tccad        | ttc                | accc        | ggtac          | a 2 | 9105  |

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| Page <sup>1</sup>                          |                                 |

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Simian adenovirus

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Gly Arg Asn Ser Ile Arg Tyr Ser Glu Leu Ala Pro Leu Tyr Asp Thr 50 60

Thr Arg Val Tyr Leu Val Asp Asn Lys Ser Ala Asp Ile Ala Ser Leu 70 75 80

Asn Tyr Gln Asn Asp His Ser Asn Phe Leu Thr Thr Val Val Gln Asn 85 90 95

Asn Asp Phe Thr Pro Val Glu Ala Gly Thr Gln Thr Ile Asn Phe Asp 100 105 110

Glu Arg Ser Arg Trp Gly Gly Asp Leu Lys Thr Ile Leu Arg Thr Asn 115 120 125

Met Pro Asn Ile Asn Glu Phe Met Ser Thr Asn Lys Phe Arg Ala Arg Page 124

135 140

Leu Met Val Glu Lys Val Asn Lys Glu Thr Asn Ala Pro Arg Tyr Glu 145 150 155 160 Trp Phe Glu Phe Thr Leu Pro Glu Gly Asn Tyr Ser Glu Thr Met Thr 165 170 175 Ile Asp Leu Met Asn Asn Ala Ile Val Asp Asn Tyr Leu Glu Val Gly 180 185 190 Arg Gln Asn Gly Val Leu Glu Ser Asp Ile Gly Val Lys Phe Asp Thr 195 200 205 Arg Asn Phe Arg Leu Gly Trp Asp Pro Val Thr Lys Leu Val Met Pro 210 220 Gly Val Tyr Thr Asn Glu Ala Phe His Pro Asp Ile Val Leu Leu Pro 235 240 Gly Cys Gly Val Asp Phe Thr Gln Ser Arg Leu Ser Asn Leu Leu Gly 245 250 255 Ile Arg Lys Arg Met Pro Phe Gln Ala Gly Phe Gln Ile Met Tyr Glu 260 265 270 Asp Leu Glu Gly Gly Asn Ile Pro Ala Leu Leu Asp Val Ala Lys Tyr 275 280 285 Glu Ala Ser Ile Gln Lys Ala Arg Glu Gln Gly Gln Glu Ile Arg Gly 290 295 300 Asp Asn Phe Thr Val Ile Pro Arg Asp Val Glu Ile Val Pro Val Glu 305 310 315 Lys Asp Ser Lys Asp Arg Ser Tyr Asn Leu Leu Pro Gly Asp Gln Thr 325 335 Asn Thr Ala Tyr Arg Ser Trp Phe Leu Ala Tyr Asn Tyr Gly Asp Pro 340 345 350 Glu Lys Gly Val Arg Ser Trp Thr Leu Leu Thr Thr Asp Val Thr 355 360 365 Cys Gly Ser Gln Gln Val Tyr Trp Ser Leu Pro Asp Met Met Gln Asp 370 380 Pro Val Thr Phe Arg Pro Ser Ser Gln Val Ser Asn Tyr Pro Val Val 385 390 400 Gly Val Glu Leu Leu Pro Val His Ala Lys Ser Phe Tyr Asn Glu Gln 415

Page 125

Ala Val Tyr Ser Gln Leu Ile Arg Gln Ser Thr Ala Leu Thr His Val 420 430

Phe Asn Arg Phe Pro Glu Asn Gln Ile Leu Val Arg Pro Pro Ala Pro 435

Thr Ile Thr Thr Val Ser Glu Asn Val Pro Ala Leu Thr Asp His Gly 450 460

Thr Leu Pro Leu Arg Ser Ser Ile Ser Gly Val Gln Arg Val Thr Ile 480

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Thr Leu Arg Phe Val Pro Val Asp Arg Glu Asp Thr Ala Tyr Ser Tyr 70 75 80

Lys Val Arg Phe Thr Leu Ala Val Gly Asp Asn Arg Val Leu Asp Met 85

Ala Ser Thr Tyr Phe Asp Ile Arg Gly Val Leu Asp Arg Gly Pro Ser

Phe Lys Pro Tyr Ser Gly Thr Ala Tyr Asn Ser Leu Ala Pro Lys Gly 125

Ala Pro Asn Pro Ser Glu Trp Lys Gly Ser Asp Asn Lys Ile Ser Val 130 135 140

Arg Gly Gln Ala Pro Phe Phe Ser Thr Ser Ile Thr Lys Asp Gly Ile 150 155 160 Gln Val Ala Thr Asp Thr Ser Ser Gly Ala Val Tyr Ala Lys Lys Glu 165 170 175 Tyr Gln Pro Glu Pro Gln Val Gly Gln Glu Gln Trp Asn Ser Glu Ala 180 185 190 Ser Asp Ser Asp Lys Val Ala Gly Arg Ile Leu Lys Asp Thr Thr Pro 195 200 205 Met Phe Pro Cys Tyr Gly Ser Tyr Ala Lys Pro Thr Asn Glu Gln Gly 210 220 Gly Gln Gly Thr Asn Thr Val Asp Leu Gln Phe Phe Ala Ser Ser Ser 240 Ala Thr Ser Thr Pro Lys Ala Val Leu Tyr Ala Glu Asp Val Ala Ile 245 250 Glu Ala Pro Asp Thr His Leu Val Tyr Lys Pro Ala Val Thr Thr Thr 260 265 270 Thr Thr Ser Ser Gln Asp Leu Leu Thr Gln Gln Ala Ala Pro Asn Arg 275 280 285 Pro Asn Tyr Ile Gly Phe Arg Asp Asn Phe Ile Gly Leu Met Tyr Tyr 290 295 300 Asn Ser Thr Gly Asn Met Gly Val Leu Ala Gly Gln Ala Ser Gln Leu 305 Asn Ala Val Val Asp Leu Gln Asp Arg Asn Thr Glu Leu Ser Tyr Gln 325 330 335 Leu Met Leu Asp Ala Leu Gly Asp Arg Ser Arg Tyr Phe Ser Met Trp 340 350 Asn Gln Ala Val Asp Ser Tyr Asp Pro Asp Val Arg Ile Ile Glu Asn 355 360 365 His Gly Val Glu Asp Glu Leu Pro Asn Tyr Cys Phe Pro Leu Gly Gly 370 380 Ser Leu Val Thr Glu Thr Tyr Thr Gly Leu Ser Pro Gln Asn Gly Ser 395 Asn Thr Trp Thr Asp Ser Thr Thr Tyr Ala Thr Arg Gly Val Glu 405 410 415 Ile Gly Ser Gly Asn Met Phe Ala Met Glu Ile Asn Leu Ala Ala Asn Page 127

420 425 430

Leu Trp Arg Ser Phe Leu Tyr Ser Asn Val Ala Leu Tyr Leu Pro Asp 445

Glu Tyr Lys Leu Thr Pro Asp Asn Ile Thr Leu Pro Asp Asn Lys Asn 450 460

Thr Tyr Asp Tyr Met Asn Gly Arg Val Ala Ala Pro Ser Ser Leu Asp 475 475

Thr Tyr Val Asn Ile Gly Ala Arg Trp Ser Pro Asp Pro Met Asp Asn 485 490 495

Val Asn Pro Phe Asn His His Arg Asn Ala Gly Leu Arg Tyr Arg Ser 500 505 510

Met Leu Gly Asn Gly Arg Tyr Val Pro Phe His Ile Gln Val Pro 515 520 525

Gln Lys Phe Phe Ala Ile Lys Asn Leu Leu Leu Pro Gly Ser Tyr
530 540

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Ser Leu Gly Asn Asp Leu Arg Val Asp Gly Ala Ser Val Arg Phe Asp 575

Ser Ile Asn Leu Tyr Ala Asn Phe Phe Pro Met Ala His Asn Thr Ala 580 585 590

Ser Thr Leu Glu Ala Met Leu Arg Asn Asp Thr Asn Asp Gln Ser Phe 595 600

Asn Asp Tyr Leu Cys Ala Ala Asn Met Leu Tyr Pro Ile Pro Ala Asn 610 620

Ala Thr Ser Val Pro Ile Ser Ile Pro Ser Arg Asn Trp Ala Ala Phe 625 630 635

Arg Gly Trp Ser Phe Thr Arg Leu Lys Thr Lys Glu Thr Pro Ser Leu 645 650

Gly Ser Gly Phe Asp Pro Tyr Phe Thr Tyr Ser Gly Ser Ile Pro Tyr 660 665

Leu Asp Gly Thr Phe Tyr Leu Asn His Thr Phe Lys Lys Val Ser Ile 685

Met Phe Asp Ser Ser Val Ser Trp Pro Gly Asn Asp Arg Leu Leu Thr 690 700 Page 128

Pro Asn Glu Phe Glu Ile Lys Arg Thr Val Asp Gly Glu Gly Tyr Asn 705 715 720 Val Ala Gln Cys Asn Met Thr Lys Asp Trp Phe Leu Ile Gln Met Leu 725 730 735 Ser His Tyr Asn Ile Gly Tyr Gln Gly Phe Tyr Val Pro Glu Gly Tyr 745 750 Lys Asp Arg Met Tyr Ser Phe Phe Arg Asn Phe Gln Pro Met Ser Arg 755 760 765 Gln Val Val Asp Thr Thr Thr Tyr Thr Asp Tyr Lys Asn Val Thr Leu 770 780 Pro Phe Gln His Asn Asn Ser Gly Phe Val Gly Tyr Met Gly Pro Thr 785 790 795 800 Met Arg Glu Gly Gln Ala Tyr Pro Ala Asn Tyr Pro Tyr Pro Leu Ile 805 810 815 Gly Lys Thr Ala Val Pro Ser Leu Thr Gln Lys Lys Phe Leu Cys Asp 820 830 Arg Thr Met Trp Arg Ile Pro Phe Ser Ser Asn Phe Met Ser Met Gly 835 840 845 Ala Leu Thr Asp Leu Gly Gln Asn Met Leu Tyr Ala Asn Ser Ala His 850 860 Ala Leu Asp Met Thr Phe Glu Val Asp Pro Met Asp Glu Pro Thr Leu 865 870 875 880 Leu Tyr Val Leu Phe Glu Val Phe Asp Val Val Arg Ile His Gln Pro 885 890 895 His Arg Gly Val Ile Glu Ala Val Tyr Leu Arg Thr Pro Phe Ser Ala 900 910 Gly Asn Ala Thr Thr 915

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PRT

Simian adenovirus

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70 75 80 Ser Val Leu Val Thr Pro Pro Ile Thr Lys Ala Asn Asn Thr Ile Gly 85 90 95 Leu Ala Phe Asn Ala Pro Leu Thr Leu Gln Ser Asp Thr Leu Asn Leu 100 105 110 Ala Cys Asn Ala Pro Leu Thr Val Gln Asp Asn Arg Leu Gly Ile Thr 115 120 125 Tyr Asn Ser Pro Leu Thr Leu Gln Asn Ser Glu Leu Ala Leu Ala Val 130 140 Thr Pro Pro Leu Asp Thr Ala Asn Asn Thr Leu Ala Leu Lys Thr Ala 150 Arg Pro Ile Ile Thr Asn Ser Asn Asn Glu Leu Thr Leu Ser Ala Asp 165 170 175 Ala Pro Leu Asn Thr Ser Thr Gly Thr Leu Arg Leu Gln Ser Ala Ala 180 185 190 Pro Leu Gly Leu Val Asp Gln Thr Leu Arg Val Leu Phe Ser Asn Pro 195 200 205 Leu Tyr Leu Gln Asn Asn Phe Leu Ser Leu Ala Ile Glu Arg Pro Leu 210 215 220 Ala Leu Thr Thr Gly Ser Met Ala Met Gln Ile Ser Gln Pro Leu 225 230 235 Lys Val Glu Asp Gly Ser Leu Ser Leu Ser Ile Glu Ser Pro Leu Asn 245 250 255 Leu Lys Asn Gly Asn Leu Thr Leu Gly Thr Gln Ser Pro Leu Thr Val 260 265 270 Thr Gly Asn Asn Leu Ser Leu Thr Thr Thr Ala Pro Leu Thr Val Gln 285 Asn Asn Ala Leu Ala Leu Ser Val Leu Leu Pro Leu Arg Leu Phe Asn Page 130

290 295 300

Asn Thr Ser Leu Gly Val Ala Phe Asn Pro Pro Ile Ser Ser Ala Asn 305 310 315

Asn Gly Leu Ser Leu Asp Ile Gly Asn Gly Leu Thr Leu Gln Tyr Asn 325 330 335

Arg Leu Val Val Asn Ile Gly Gly Gly Leu Gln Phe Asn Asn Gly Ala 340 345 350

Ile Thr Ala Ser Ile Asn Ala Ala Leu Pro Leu Gln Tyr Ser Asn Asn 355 360 365

Gln Leu Ser Leu Asn Ile Gly Gly Gly Leu Arg Tyr Asn Gly Thr Tyr 370 380

Lys Asn Leu Ala Val Lys Thr Asp Ser Phe Arg Gly Leu Glu Ile Asp 385 390 400

Ser Asn Gln Phe Leu Val Pro Arg Leu Gly Ser Gly Leu Lys Phe Asp 405 410 415

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Leu Trp Thr Thr Ala Asp Pro Ser Pro Asn Ala Thr Phe Tyr Asp Ser 435 440 445

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Thr Ala Ser Phe Ile Ser Phe Val Met Tyr Phe Tyr Ser Asn Gly Thr 485 490 495

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Lys Gly Thr Glu Val Gln Asn Met Glu Leu Thr Tyr Thr Phe Leu Gln 555 550

Gly Asp Pro Thr Met Ala Ile Ser Phe Gln Ala Ile Tyr Asn His Ala 570 575 Page 131

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